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# the Lineman



RURAL ELECTRIFICATION ADMINISTRATION - U. S. DEPARTMENT OF AGRICULTURE

## LINE CONVERSION JOB RESULTS IN FATALITY

A three-phase line dead-ended at pole DA35. A single-phase line continued in the same direction from the other side of this pole. Single-phase taps took off to the right and left from pole DA35.

At the time of the accident the single-phase line beyond pole DA25 was being converted to three-phase. To do this the single-phase was de-energized between pole DA35 and DA59. A loop circuit was used to serve the single-phase beyond DA59.

The two additional conductors were pulled in and tied in temporarily in their proper phase positions. At this time, it was discovered that the two phases were crossed. The wire foreman cut one conductor to eliminate the cross. Since no sleeves were available at the time, a temporary hand splice was made.

The existing conductor of the original single-phase line was poorly sagged. So the armor rods were removed and all four conductors sagged together. When this was completed, it was noticed that the hand splice had not been replaced with a permanent splice. The hand splice was holding. Two linemen removed this conductor from the crossarms at poles DA36 and DA37. This permitted the conductor to sag down within reaching distance from the ground.

Five men were assigned to hold the conductor down. They were walking down the conductor single file, hand over hand on the section between the splice and pole DA35. The additional stress placed upon the conductor caused a wave to be set up in the conductor which travelled back to the dead-end and whipped the conductor into one of the energized taps. This resulted in the momentary energization of the piece of conductor to which the five men were still holding. The last man in the row of five and the closest one to pole DA35 was rendered unconscious from the shock. Artificial respiration was applied without success. The other four men received severe electric shocks which knocked them down but did not cause them to lose consciousness. One of the four received electrical burns and was hospitalized for a short time.

(Continued on Page 3)



HOT TAP      C PHASE      POLE DA 35  
WHIPPED  
INTO HOT TAP

## POISON PLANT TREATMENT

- Continued From July Issue -

The U. S. Public Health Service has been experimenting with a new treatment for poison plant poisoning. Full details are contained in Public Health Reprint No. 2278 titled "Tannic Acid Treatment of Poison Ivy Dermatitis". This may be obtained from the Superintendent of Documents U. S. Government Printing Office, Washington 25, D. C. Price - 5 cents.

The new treatment consists of rubbing the tops off the small blister-like areas with sterile cotton soaked in 95% alcohol. The alcohol is allowed to dry. The area is then painted twice a day with a 10% solution of tannic acid.

The following quotation was taken from the above-mentioned U. S. Public Health publication No. 2278:

"The first patient whom we treated had an eruption limited to the calf of the leg. The dermatitis had been present for 2 weeks, but was still itching and exhibited erythema, small vesicles, and scratch marks; the eruption had been treated ineffectually with calamine lotion containing phenol.

"The area was rubbed vigorously with a piece of gauze soaked in 95% alcohol, removing the tops from the vesicles. The alcohol was then allowed to evaporate, leaving an oozing

(Continued on Page 3)



# TO TREAT OR NOT TO TREAT

-- Editorial --

Skin irritation from poison plants (poison ivy, poison oak, and poison sumac) range from mild irritations requiring little attention to severe cases which require hospitalization. The mild or less severe cases seldom get medical treatment. The victim doctors himself and endures the discomfort until the poison runs its course.

American Red Cross First Aid courses constantly emphasize that self-treatment should be an emergency measure. The "First Aider" is taught the things which should be done for the good of the patient while medical assistance is being obtained. He is also taught to evaluate the severity of the injury to determine what type of assistance to obtain.

For instance, a skinned knuckle would be painted with an antiseptic solution and a small adhesive bandage applied to keep out dirt. Ordinarily the injured person would not be sent to a doctor. On the other hand, if the injury was a deep puncture wound such as is caused by stepping on a nail, the "First Aider" would place a bandage over the wound to keep out any additional dirt and germs. Then he would send the injured person to the doctor to have the wound cleaned and anti-tetanus shots administered.

What not to do is often just as important as what to do. One reason we recommend Red Cross First Aid training is that people who take it learn how far they should go in deciding what the trouble is, how it should be treated on the spot and what should not be done.

Elsewhere in this issue is an article on a new treatment for poison plant poisoning and a discussion of a new medication to relieve the pain caused by creosote burns and the itching which results from skin irritations. Wisely used, these remedies can eliminate a great deal of discomfort. If they are unwisely used harm can result. Severe cases of either poison plant poisoning or creosote burns should be treated by a doctor.

## Transformer Pamphlet Available

A transformer pamphlet compiled by the Technical Standards Division of REA is now available without charge to co-op linemen. Some of the topics presented are polarity, substation transformer failure, paralleling transformers, overloading, single-phase loads on three-phase bank, maintenance, etc. To get one of these pamphlets, drop a penny postal card to Editor, The Lineman, 1234 South Bldg., R.E.A. U.S. Dept. of Agriculture, Washington 25, D. C.

## Drug Treatment For Chemical Burns

A new drug is now available to relieve the pain caused by all types of burns including chemical burns such as are caused by exposure to creosote. It is not a cure - it merely relieves the pain when rubbed on the skin area affected.

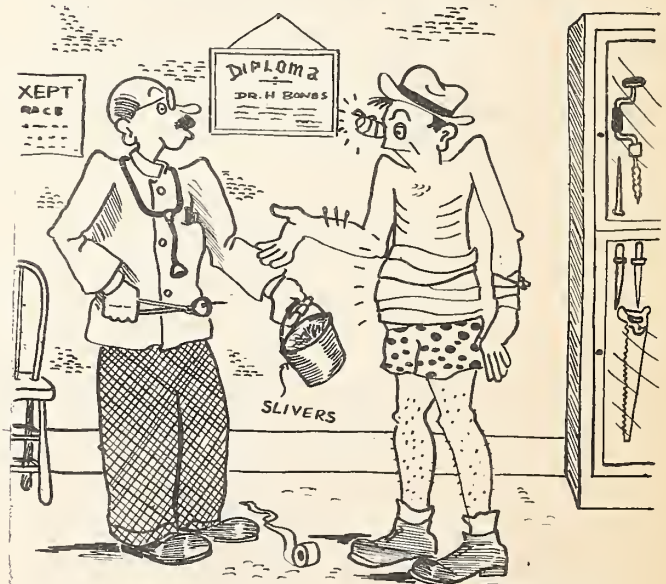
Most creosote burns are not serious. The main damage is the temporary discomfort. The burning sensation of the face and other exposed parts of the body is often intense enough to prevent restful sleep after a hot day of handling poles. Rubbing the drug on these areas will relieve the pain for from four to six hours. It does not cure the burn. If the pain were stopped in this manner and the same kind of work continued the next day a serious burn could result because the individual did not feel the second burn which he was receiving.

This drug is also excellent to relieve the pain of sunburn.

The drug, prepared as an ointment or as a jelly in tubes, is manufactured by the Ely Lilly company under the trade name of Surfa-caine in strengths of 1 percent and one-half percent. Local druggists who do not have it in stock can order it.

The Lineman will publish the names of other manufacturers of similar preparations that come to our attention.

## Hard Luck Harry



"YÉR SUPPOSED TO PULL OUT TH  
HOOKS AN SLIDE DOWN"

## New Specification Approved

Drawing C 4-1 shown on Page 4 of this issue is a new specification approved by REA during July, 1948. It may be used in place of drawing C4 in the present specifications. This specification can be used immediately for this and similar assemblies. The only change in the new drawing is the extended deadend on the two lower phases. This will reduce the hazard formerly encountered when working the middle and top phases hot as it provides 3 feet of clearance from the center of the pole to the closest energized part.

### POISON PLANT - continued

surface. The serum was wiped off with gauze and a 10% aqueous solution of tannic acid was painted on. This was allowed to dry for one-half hour and another application was made and allowed to dry.

"The patient was given a 2-ounce bottle of the tannic acid solution and directed to apply the solution to the eruption twice daily. He was told that if any new vesicles appeared these were to be rubbed with alcohol until the tops were rubbed off, when the tannic acid solution should be applied. The patient returned the next day with the lesion completely crusted over with a thin adherent crust and the subjective symptoms gone. No new vesicles had appeared, and in 1 week's time the crust had fallen off and the skin had become normal."

### TENNESSEE SAFETY CALLING CARD

C. G. Alexander, Safety and Job Training Instructor for Tennessee, has developed the calling card reproduced below. He uses this card to keep three basic principles of safety before the linemen with whom he works. The prevention of electric shock accidents will reduce the total number of fatal and permanently disabling accidents which occur each year.

Front (actual size) → Back (enlarged) →

WOULD YOU DO THREE THINGS TO STAY ALIVE?

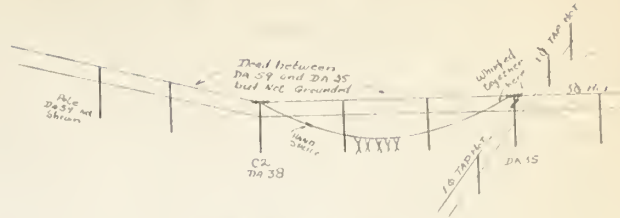
READ OTHER SIDE

Tennessee State Board for Vocational Education

— REA Job Training and Safety Program

Nashville, Tennessee

### LINE CONVERSION - continued



### Discussion Points

1. The stress on the crossarm caused by the three conductors was equally divided as long as the splice held. The unequal pull on the arm after the splice parted caused the arm to twist approximately 12 inches. The sudden jerk imparted to the conductor from this cause apparently set up the wave which caused considerable "whipping" of the conductor.
2. Should the two single-phase taps have been de-energized?
3. Would a protective ground at pole DA35 have prevented injury to the men?
4. Should a second protective ground have been placed at pole DA38 so the men would have been working between grounds within sight of the work area?
5. Was two-way protection absolutely necessary since the single-phase was not beyond pole DA59?
6. Is it good practice to make temporary splices? How much time was saved?
7. Can linemen learn a great deal about unsafe work practices by analyzing work procedures which caused injury to other linemen?

### THREE GOOD SAFETY RULES

#### 1. POSITION SELF PROPERLY

Position in the electrical field is the most important safety precaution that can be used. If the worker places himself in such a position that should he slip or make a false move, he would not accidentally contact an energized phase. If he does not contact an energized phase, he will not receive an electrical shock. The recommended working clearance: No closer than 30 inches to 6900 or above.

#### 2. USE PROTECTIVE EQUIPMENT

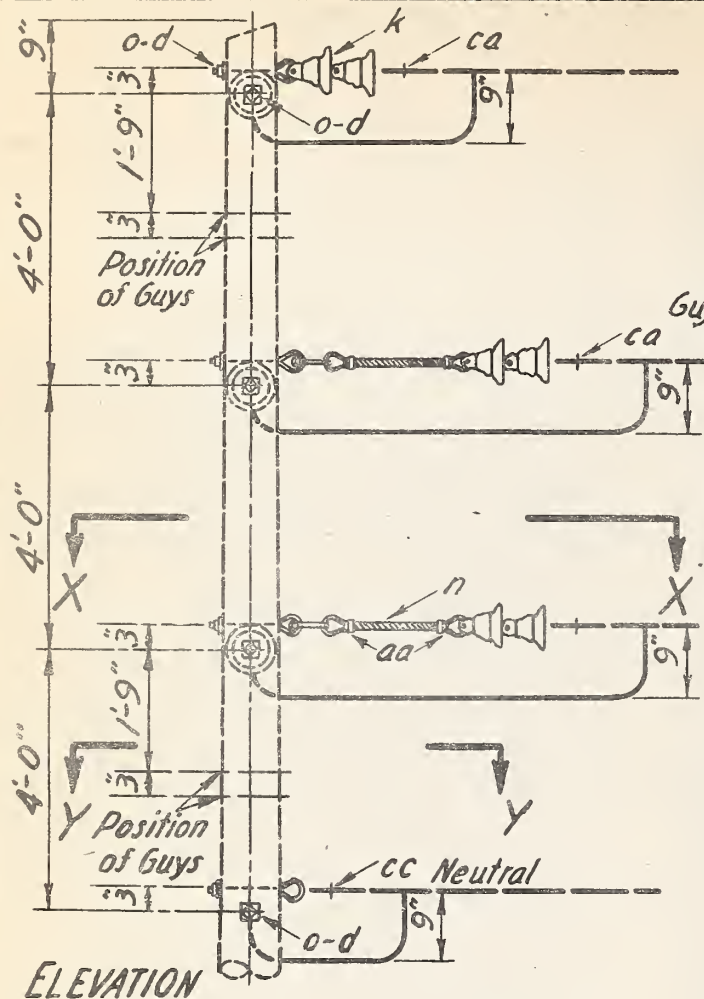
Protective equipment shall be used on wires carrying voltages for which protective equipment is designed. Protective equipment may be used in order to secure position.

#### 3. PLACE GROUNDS IN SIGHT

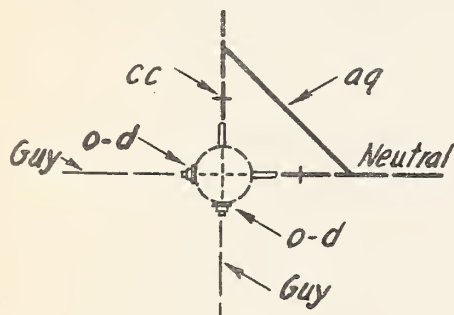
Protective grounds shall be placed on each side of worker in sight on all circuits supposed to be de-energized.

If these three rules of safety are followed, it is believed that electrical shock will be greatly reduced, if not entirely eliminated.

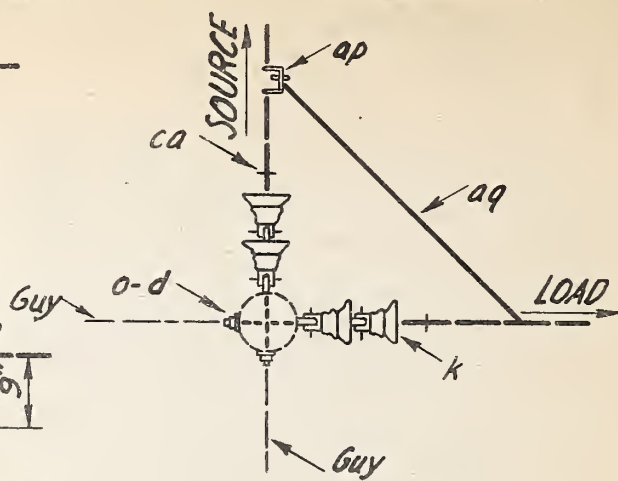




ELEVATION

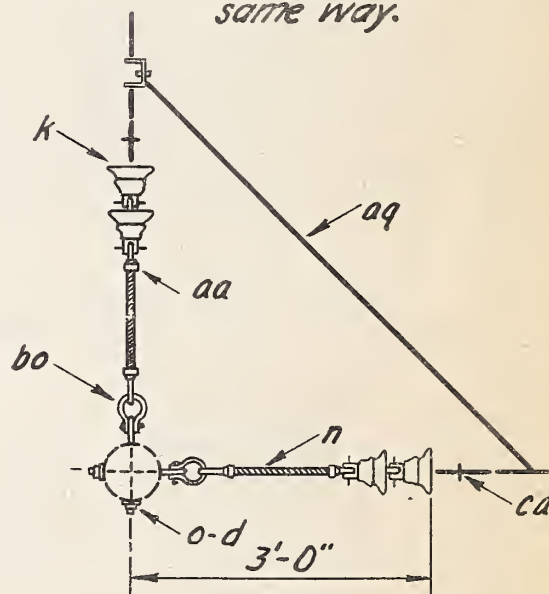


SECTION Y-Y



PLAN

Other similar assemblies may be constructed in the same way.



SECTION X-X

| ITEM | NO. REQ'D. | MATERIAL                                     | ITEM | NO. REQ'D. | MATERIAL                  |
|------|------------|--|------|------------|---------------------------|
| d    | 8          | Washer, 2 1/4" x 2 1/4" x 3/16", 13/16" hole | ap   | 3          | Clamp, hot line           |
| k    | 12         | Insulator, suspension                        | aq   |            | Jumpers                   |
| n    | 4          | Bolt, double arming, 5/8" x req'd. lgth.     | bo   | 4          | Schackle, anchor          |
| o    | 8          | Bolt, eye, 5/8" x required length            | ca   | 6          | Deadend assembly, primary |
| p    |            | Connectors, as required                      | cc   | 2          | Deadend assembly, neutral |
| aa   | 8          | Nut, eye                                     |      |            |                           |

Date: June 17, 1948

C4-1

PAGE  
4

KV. PRIMARY, 3-PHASE 4-WIRE STAR  
VERTICAL CONSTRUCTION-60 TO 90° ANGLE

Scale: 1/2" = 1'-0"